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EXAMINER	
DINH, TUAN T	

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RAVI PRASHER

Appeal 2009-002912
Application 10/811,597
Technology Center 2800

Decided:[1] June 22, 2009

Before BRADLEY R. GARRIS, PETER F. KRATZ, and
CATHERINE Q. TIMM, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the Decided Date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1-11, 15-16, and 25-28.[2] We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

I. STATEMENT OF THE CASE

The invention relates to cooling a integrated circuit die with a cooling system that includes microchannels 30 for a coolant defined by grooves 28 formed in a microchannel member 24 and a rear surface 22 of an integrated circuit die 10 and a thin film thermoelectric cooling (TFTEC) device 40 located in one of the microchannels 30 (Spec. 3, l. 24-4, l. 3; 5, ll. 5-8). Claim 1 is illustrative of the subject matter on appeal:

1. An apparatus comprising:

an integrated circuit (IC) die having a front surface on which an integrated circuit is formed and a rear surface that is opposite to the front surface;

a member to define at least one microchannel at the rear surface of the IC die, the microchannel to allow a coolant to flow therethrough; and

at least one thin film thermoelectric cooling (TFTEC) device in the at least one microchannel.

The Examiner maintains the flowing rejections:

the rejection of 1-9, and 11 under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,239,200, issued August 24, 1993, to Messina et al. (hereinafter "Messina") in view of U.S. Patent No. 6,489,551 B2, issued December 3, 2002, to Chu et al. (hereinafter "Chu");

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[2] We note that the Examiner has deemed pending claims 12-14 as containing allowable subject matter. Accordingly, these claims are not presently appealed.

the rejection of claim 10 under 35 U.S.C. § 103(a) as obvious over Messina and Chu, and further in view of U.S. Patent No. 3,232,719, issued February 1, 1966, to Ritchie (hereinafter "Ritchie");

the rejection of claims 15, 23-25, 27, and 28 under 35 U.S.C. § 103(a) as obvious over Messina and Chu and further in view of U.S. Patent No. 6,711,904 B1, issued March 30, 2004, to Law et al. (hereinafter "Law");

the rejection of claim 16 under 35 U.S.C. § 103(a) as obvious over Messina and Chu and further in view of U.S. Patent No. 6,410,971 B1, issued June 25, 2002, to Otey (hereinafter "Otey"); and

the rejection of claim 26 under 35 U.S.C. § 103(a) as obvious over Messina and Chu and further in view of Ritchie.[3]

II. ISSUE ON APPEAL

The dispositive issue on appeal arising from the contentions of Appellant and the Examiner is: has the Appellant shown that the Examiner reversibly erred in determining that it would have been obvious to one of ordinary skill in the art to include a TFTEC device, as taught by Chu, in a microchannel of the cooling system taught by Messina?

III. FACTUAL FINDINGS

The following Findings of Fact (FF) are relevant to deciding the issue on appeal:

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[3] Appellant lists the rejection of claims 1-9, and 11 over Messina and Chu as the ground of rejection to be reviewed on appeal, and further states that the additional rejections, which add further art references, are not believed to raise any further issues that require consideration in this Appeal (Br. 3). Therefore, all of the grounds of rejection are on review. We determine that the issue raised with respect to the first rejection does, in fact, dispose of all of the rejections on appeal.

1. In the rejection, the Examiner states that "Messina does not disclose at least one thin film thermoelectric cooling (TFTEC) device in the at least one microchannel." Though, in addressing the obviousness of employing a TFTEC taught by Chu in the apparatus of Messina, the Examiner makes no finding with regard to positioning the device in the microchannel. (Final Office Action, 2-3; Ans. 3-4).

2. In response to the Appellant's Brief, the Examiner states:

> Chu shows a module (10) in figure 1 comprising a thin film TEC device (20, column 4, line 23, and column 5, lines 15-16) formed between a thermal space transformer (22) and a chip (12).
>
> Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a TFTEC as taught by Chu employed in the micro-channel (22, 46) of a heatsink member of Messina's apparatus in order to provide active temperature control and high cooling density.

(Ans. 8).

IV. PRINCIPLES OF LAW

"On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of prima facie obviousness or by rebutting the prima facie case with evidence of secondary indicia of nonobviousness." *In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) (emphasis omitted). "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.* at 988 (*quoted with approval in KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007)).

V. ANALYSIS

We agree with the Appellant that the Examiner has failed to provide adequate reasons, based upon the teachings of the prior art, for including the TFTEC taught by Chu in the microchannel taught by Messina (Reply Br. 2). In particular, the Examiner has failed to provide an articulated reason with a rational underpinning as to why the teaching of Chu as to the location of the TFTEC between a thermal space transformer 22 and a chip 12 would have made it obvious to one of ordinary skill in the art to locate the TFTEC in the microchannel taught by Messina, as opposed to any other location within the system taught by Messina.

Accordingly, the Appellant has shown reversible error by the Examiner.

VI. CONCLUSION

For the reasons discussed above, we cannot sustain the Examiner's rejection of claims 1-9 and 11 under 35 U.S.C. § 103(a) as being obvious over Messina in view of Chu. Since the rejections of independent claim 23 and the remaining dependent claims also rely upon Messina and Chu in the same capacity as applied to claim 1-9, and 11 (*see* Ans. 4-6), and the additional references do not remedy the above discussed deficiency, we cannot sustain any of the Examiner's rejections.

VII. DECISION

We reverse the Examiner's decision.

REVERSED

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